

AMENDMENTS TO THE CLAIMS

Kindly enter the following amendment to the claims:

Claim 1 (original):

A device for locating a series arc fault at one or more series connections having a first end and a second end, the first end of the connections being coupled to a source of common-mode voltage and the second end of the connections being coupled to a wire, the wire having a conductive layer and a insulation layer for sheathing the conductive layer, the device comprising:

an electrode electrically coupled to the source of common-mode voltage at a first node, thereby providing a reference based on the common-mode voltage;

a probe adapted for clamping to the wire at a second node, thereby forming a coupling capacitance to electrically couple the probe to the wire; and

a measuring circuit being coupled to the probe and being coupled to the electrode so as to measure an AC voltage between the first node and the second node to detect and locate the series arc fault.

Claim 2 (original):

The device of claim 1, wherein the probe includes a first conductive layer and wherein the coupling capacitance electrically couples the first conductive layer of the probe to the conductive layer of the wire.

Claim 3 (original):

The device of claim 2, wherein the probe includes a second conductive layer and a first insulation layer, the first insulation of the probe being interposed between the second conductive layer of the probe and the first conductive layer of the probe, the second conductive layer being defined as a probe shield for shielding the first conductive layer of the probe from parasitic capacitance.

Claim 4 (previously amended):

The device of claim 3, wherein the shield is driven by a guard voltage, the guard voltage having a level being nearly equal to the measured AC voltage, and thereby compensating for the undesired capacitance produced by the second conductive layer.

Claim 5 (previously amended):

The device of claim 1, wherein the device includes means for measuring an offset voltage that causes error in the measured AC voltage, the measuring means being adapted to normalize the measured AC voltage based on the offset voltage.

Claim 6 (original):

The device of claim 1, wherein the device includes a circuit means to measure the high-frequency noise produced by the series arc fault.

Claim 7 (original):

The device of claim 1, wherein the probe is encased in a nonconductive material to protect a user from electric shocks.

Claim 8 (previously amended):

The device of claim 1, wherein the measuring circuit is housed in a chamber acting as an electrostatic shield, the chamber being electrically coupled to the electrode.

Claim 9 (original):

The device of claim 1, wherein the measuring circuit includes an amplifier having a high impedance to inhibit the measured AC voltage from changing significantly when the coupling capacitance changes.

Claim 10 (original):

The device of claim 1, wherein the coupling capacitance is greater than about 1 picofarads and less than about 10 picofarads.

Claims 11-17 (previously withdrawn).

Claims 18-21 (cancelled).

Claims 22-34 (previously withdrawn).

Claims 35-36 (cancelled).